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*Educational Psychology*. Vol. I, "The Original Nature of Man." Pp. 327. Vol. II, "Psychology of Learning." Pp. 452. Vol. III, "Mental Work and Fatigue and Individual Differences." By E. L. THORNDIKE. New York: Teachers College, Columbia University, 1913-14. Pp. 408.

These three volumes are in part a revision of the author's previous work by the same title, and in part new material. The first volume on the instincts is new in the main, although it was foreshadowed to some extent by the author's *Notes on Child Study* and in certain passages in other works. The aim of the treatment of the instincts is not merely to trace the general tendencies in the child's reactions, but to determine specifically and in detail the particular situations which call for their instinctive responses, and the exact nature of the responses which are made. Thus, for example, the author is not satisfied by describing in general terms the instinct of fear, but determines, so far as the data which he can find make possible, the exact objects which call forth fear reactions and the precise movements which are made. This procedure leads to the rejection of some of the forms of response which have ordinarily been classed as instincts. It leaves one with the impression that the facts which are described are very fragmentary, and in some cases that the conclusions are unnecessarily negative. Undoubtedly, the effort to catalogue a list of the particular movements which are instinctive, and of the situations to which they constitute a response, puts the matter on more solid ground than have earlier, less definite types of treatment. The author is somewhat iconoclastic in his treatment of certain of the instincts, as, for example, that of imitation. He makes a rather detailed analysis of the possible kinds of reactions which might be regarded as imitative and eliminates them in turn, so as to come to the conclusion that imitative acts are not instinctive. One must take this conclusion in connection with the type of responses which the author takes to be instinctive.

What he appears to mean is that the perception of an action, or of the result of an action, does not have any neural relation to the movements by which the action which is perceived is copied. That is, the child is not capable of learning a new movement through seeing it performed. The connection he sees between the stimulus and the response must previously have been made through some other motive before it can be set up by imitation. That the child has a strong impulse to reproduce the actions which he sees, provided he has previously gained control over the necessary movements, does not seem to be denied by this argument. It is not necessary to go into further details and comment upon the subject-matter of this book. It is an important contribution to the psychology of child development.

Vol. II is an account of the laws and factors of learning. The author adopts and maintains a general standpoint in this volume which is similar to that taken in the first volume. This standpoint is that all learning can be reduced

to a series or group of specific connections or bonds between situations and responses. Moreover, the position taken is that the character of the connection between the stimuli and the responses is identical in all forms of learning. In order to indicate what the nature of these bonds is, the author begins with animal learning, as the representative of the simplest type. The other forms of learning are then reduced to the same type. With this identification of higher types of learning, as represented in problem-solving, with the sensory motor type of learning such as is found in animals or human beings, not all students will agree. The attempt to make such identification, however, is suggestive and stimulating.

After giving a general description of the various classes of learning through the description of typical cases, the author gives in detail various explanations of the factors of the learning process. For example, he discusses the character of the practice-curve, the factors and conditions of improvement, and the limits of improvement. The last section of the book is taken up with a discussion of formal discipline or transfer of training. In this the author recounts the changes which have taken place in opinions regarding this matter, reviews the experiments which have been made before him, and then gives his own attitude upon the question. He is inclined to place relatively more emphasis upon the fact and the importance of the transfer, than he did in his earlier work, which followed his well-known experiments on transfer in perception. Many passages, in fact, throughout the book could be cited in which the view of the mental life as made up not merely of isolated responses but also of general attitudes of mind serves as a basis for the view that training does not merely consist in the development of specific responses but also of general attitudes of mind. For example, a passage on p. 260, in which the interrelation of different factors in improvement is being discussed, the author shows that any particular case of learning is founded upon the results of many forms of previous training. To quote: "Mental abilities or functions are so interdependent that a point when a man begins to improve any one of them simply cannot be found. . . . The beginning of the improvement of any ability regarded as the inner feature of a man is simply the beginning of all his abilities. In a true and important sense all practice-curves should stick with the first association that the baby forms." This is as emphatic a statement as anyone who believes in the intimate relationship between the various functions of the mental life could wish to make.

The third volume, as the title indicates, discusses the facts of mental work and fatigue and individual differences. The discussion of individual differences is a revision of the author's earlier book, and no especial comment need be made upon it. In the treatment of fatigue the author reiterates his well-known view that fatigue is much less in amount than it has been the custom to believe. He attempts to estimate the amount of decrease in efficiency which may be ascribed to fatigue and at one place puts the estimate at about 10 per cent for work which is continued through several hours. It is well to cor-

rect the popular view that a large amount of impairment in efficiency necessarily follows a prolonged period of work. It is worth remarking, however, that the loss in the case of children is undoubtedly greater than it is for adults, and, furthermore, that the feelings of weariness, which accompany work, though they may not cause a necessary decrease in efficiency for the time being, may have significance in other directions.

The author is critical of the analysis of the fluctuation in efficiency during a single work period, which has been made by Kraepelin and his students. He holds, on the basis of examination of the actual facts of the work period, that the fluctuations which are believed to exist do not actually exist and, further, that the analysis of the causes of these fluctuations after the fact is of little value in their explanation. The type of explanation which is desirable, he says, is one which will enable one to predict what the course of efficiency will be.

The work as a whole is a large contribution to the literature of the educational psychology. It brings together a large amount of data and the author has contributed much penetrating analysis of the facts and criticism of current views. Perhaps, also, the adoption of hypotheses which will not in some cases meet with general agreement may be equally valuable in stimulating thought on the matters which are dealt with.

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*The Facilities for Graduate Instruction in Modern Languages in the United States.* By CHARLES H. HANDSCHIN, PH.D. (Miami University Publications.) Oxford, Ohio, 1914. Pp. 97.

For many years Professor Handschin has been working on the history of modern-language instruction in this country. The results of his investigation are embodied in his *The Teaching of Modern Languages in the United States* (United States Bureau of Education, Bulletin No. 3, 1913), which is now the standard reference work on the subject. Closely related to the methods of teaching is the matter of training teachers and opportunities for advanced work. The present volume, *Facilities for Graduate Instruction*, etc., has grown out of the preceding and is a part of the author's forthcoming larger work on the history of graduate instruction in modern languages in the United States.

The monograph consists of two parts: A "Who's Who" of the modern-language men, on the order of *American Men of Science* (pp. 9-81), and five statistical tables, exhibiting the relative strength of the institutions under consideration in regard to modern languages (pp. 82-97).

The "Who's Who" is the *pièce de résistance* of the monograph. It gives an alphabetical list of 250 persons, giving graduate instruction in 42 of the foremost institutions of learning, together with their highest academic degree and present rank, the titles of their graduate courses, and a bibliography of their published works. The bibliographies were, in nearly every instance,